

REMARKS

In the above-mentioned Office Action, claims 1-14 and 16-20 were rejected. And, while claim 15 was acknowledged to recite patentable subject matter, objection was made to the claim for being dependent upon rejected parent claims.

Claims 1-8, 11, and 16 were rejected under Section 103(a) over the combination of Zimmerman and Ko. Claims 9-10 were rejected under Section 103(a) over the combination of Zimmerman, Ko, and Heath. Claim 12 was rejected under Section 103(a) over the combination of Zimmerman, Ko, and Chapmen. Claims 13-15 were rejected under Section 103(a) over the combination of Zimmerman, Ko, and Ling. And, claims 17-20 were rejected under Section 102(a) over Ko. Objection was also made to the length of the Abstract.

Responsive to the rejections of independent claims 1 and 17, claims 1 and 17 have been amended in manners believed to distinguish better the invention of the present application over the cited references, taken alone or in any combination.

With respect to claim 1, the claim has been amended, now to include the recitations of claim 11, and further to recite that the second-modulated signal forms biorthogonal codes defined by the substantially orthogonal bases that define multiple dimensional modulation data for transmission to the second communication station. Claim 17 has also been amended to recite analogous further recitations.

Support for the claim amendments can be found, for instance, on page 9, lines 18-29.

Neither Zimmerman nor Ko disclose such structure or method. Zimmerman appears merely to pertain to OFDM transmission of digital broadcast data. And, while the Examiner relies upon Ko for showing a modulator that includes a set of orthogonal bases, review of the Figure and its corresponding description indicates that Ko merely shows a traditional heterodyne radio. Ko fails to disclose the second modulator, recited now in amended claim 1 or the corresponding operation recited now in method claim 17. Therefore, neither Zimmerman nor Ko, alone or in combination, provide for formation of a modulated signal formed of biorthogonal codes defined by orthogonal bases that define multiple dimensional modulation data responsive to mappings of the data into a selection dimension value, all as now-recited. Neither of the other references, Chapman and Ling, were cited for showing such structure or method.

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Reply to Office Action of Jul. 11, 2003

The dependent claims include all of the limitations of their respective parent claims and are believed to be patentably distinguishable over the cited references used thereagainst for the same reasons as those given with respect to their respective parent claims.

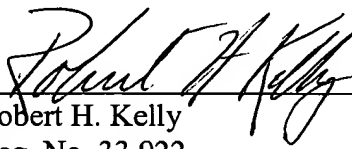
The substitute Abstract, set forth herein, is also believed to overcome the Examiner's objection thereto.

In light of the foregoing, newly presented claim 21 that places the recitations of claim 15 in independent is believed to be in condition for allowance. Additionally, independent claims 1 and 17, as now amended, and the remaining ones of the dependent claims dependent thereon, are also believed to be in condition for allowance. Accordingly, reexamination and reconsideration for allowance of these claims is respectfully requested. Such early action is earnestly solicited.

Should the Examiner have any questions or desire clarification of any sort, or deem that any further amendment is desirable to place this application in condition for allowance, the Examiner is invited to telephone the undersigned at the number listed below.

Respectfully submitted,

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Robert H. Kelly
Reg. No. 33,922

SCHEEF & STONE, L.L.P.
5956 Sherry Lane, Suite 1400
Dallas, Texas 75225
Telephone: (214) 706-4201
Fax: (214) 706-4242
robert.kelly@scheefandstone.com